

16th inst. came as a surprise, even to those best acquainted with his condition. For several years he suffered from deafness, which at length became absolute, and then gradual paralysis of the lower limbs set in. This terminated not long since in utter helplessness so far as his legs were concerned, and functional complications arising, he succumbed sooner than was expected. He bore his afflictions with wonderful fortitude, and even cheerfulness; and his only desire was to be spared to complete his great work, the "Handbook to the Flora of Ceylon." But this was not to be. It is to be hoped, however, that a competent botanist will be found to complete this important and admirably-planned publication.

Henry Trimen was born in London in 1843, and educated at King's College. In 1865 he graduated M.B., but he never practised medicine. His favourite study was botany, and he at first specially devoted himself to the British flora and the sources of vegetable drugs. In 1867 he was appointed Lecturer on Botany at St. Mary's Hospital Medical School; and in 1869, he entered the Botanical Department of the British Museum as senior assistant. In the meantime he had published a number of contributions to British botany, chiefly relating to the flora of Surrey, of Hampshire, and especially of Middlesex. His first work appeared in the *Phytologist* in 1862. Soon he became acquainted with W. T. Thiselton-Dyer, the present Director of Kew Gardens, and the result was their admirable "Flora of Middlesex," published in 1869. This work still holds a position in the first rank among county "Floras." In 1866, Trimen discovered *Wolffia arrhiza* at Staines; the first locality recorded for it in England. It was in that year that the writer became acquainted with Trimen and his associate, and made various excursions with them collecting materials for their "Flora." In 1870, Trimen joined Dr. B. Seemann in editing the *Journal of Botany*, and on the death of the latter he assumed the full responsibilities of editor, which he continued to exercise until he went to Ceylon. Concurrently he was conducting his investigations in medical botany, and he associated himself with Robert Bentley in the publication of an illustrated work on "Medicinal Plants"—a work of much research, comprising four volumes containing upwards of 300 coloured plates. Passing over many minor events, we come to the period when he was appointed to succeed Dr. Thwaites in the important and onerous duties of Director of the Botanic Gardens of Ceylon—duties he discharged in a manner satisfactory to the home authorities and the colonists. His annual reports are models of what such reports should be. He at once took up the study of the native flora, and was soon actively engaged in the introduction of valuable economic plants of other countries for cultivation in Ceylon. The first volume of his "Handbook" appeared in 1893; the second in 1894; the third in 1895; and from his last letters we learn that he was still working with a will, in spite of his afflictions.

As a botanist, Trimen was a man of great attainments. As a friend, he was sympathetic, sincere, and constant. His work was always thoroughly and conscientiously performed, and is consequently of an enduring nature. This was recognised in his being elected a Fellow of the Royal Society in 1883. W. BOTTING HEMSLEY.

NOTES.

As briefly announced in these columns on September 17, a Nansen research fund is being raised in Norway. Its object is to commemorate the remarkable Arctic expedition of this explorer by the foundation of a fund called "The Fridtjof Nansen Fund" for scientific research. The *Times* of October 23 says it is intended that, by this means, research in various

departments of science shall be promoted, and the results published. Dr. Nansen himself may be appointed director, but there will be no salary attached to the office, as the whole of the yearly products of the fund will be devoted to the objects stated. Up to the present no less than 300,000 kroner have been subscribed. Consul A. Herberg, Dr. Nansen's friend, has contributed 50,000 kroner; while others, besides numerous Norwegians, are Baron Oscar Dickson, 25,000 kroner; Dr. A. Nobel, 25,000 kroner; and Prof. Frankland, 1000 kroner. It is stated that the fund will probably be placed under the care of the Christiania University, the Norwegian Society of Science, and the Bergen Museum. If any wealthy Englishmen, who are admirers of Dr. Nansen, care to contribute, they should communicate with the Committee of the "Fridtjof Nansens fond til indenskabens emne, University, Christiania."

FROM the *British Central African Gazette* we learn that Mr. Alexander Whyte, Sir Harry Johnston's scientific assistant in British Central Africa, has just returned from a successful expedition into the Nyika plateau on the north-eastern shores of Lake Nyasa, and has made a large collection. The flora of this district proved to be most interesting, resembling that of Mount Milanji in the south of Nyasaland, but differing from it in many respects. Mr. Whyte failed to find any trace of a conifer, but the range is richer in heaths than Milanji. He obtained 6000 specimens of plants and a large zoological collection.

At a meeting of the Physical Society, to be held on October 30, it will be proposed (*inter alia*) that the subscription to the Society be increased to £2 2s., that life members be invited to contribute an annual subscription of £1 1s., and that, in future, members be styled "Fellows of the Physical Society of London."

A NOTABLE experiment in kite-flying was made at Blue Hill Observatory, N.J., on October 8. The greatest height yet reached by kites was attained, records being made at a height of 9385 feet above sea-level. More than three miles of piano wire were paid out, the ascension beginning at 9.15 a.m., and continuing till 9.5 p.m. The pull on the wire was from 20 to 50 pounds at the start, and ranged from 50 to 95 pounds at the highest point, after which it slowly decreased. The instrument entered and passed through clouds, as shown by the record of very dry air above them. The temperature fell from 46° at the hill to 20° at an altitude of 8750 feet. The meteorograph record in ink, on a revolving cylinder run by clockwork, was the best yet obtained. The lifting force consisted of seven Eddy, or tailless, and two Hargrave, or box kites, from 6 to 9 feet in diameter. The instrument was more than a mile high during three hours.

THE King of Servia has conferred upon Prof. D. E. Hughes, F.R.S., the Grand Officer's Star and Collar of the Royal Order of Takovo.

MR. J. WOLFE BARRY, C.B., F.R.S., is to deliver his presidential address to the Institution of Civil Engineers on November 3, at the inauguration of the seventy-eighth session of the society.

MR. J. DE WINTER, Assistant at the Royal Zoological Society's Garden at Antwerp, has been appointed Superintendent of the Zoological Garden at Gizeh, Cairo, and will shortly leave for Egypt.

THE first meeting of the British Ornithologists' Club for the present session was held at Frascati's Restaurant, Oxford Street, on Wednesday, the 22nd inst., and was attended by thirty-four members and guests. After some preliminary business Mr. Sclater, who was in the chair, gave an address on the progress of Ornithology during the past twelvemonths.

Various communications and exhibitions followed, amongst which was an account of the occurrence in England of a bird new to the British Avifauna. This was the greenish Willow-warbler, *Phylloscopus viridanus*, Blyth, an inhabitant of North India and Western Asia, which has previously occurred as far west as Heligoland.

MR. J. H. GREATHEAD, the engineer, who will be chiefly remembered as the pioneer in the system of tunnelling by means of the shield which bears his name, died on Wednesday, October 21.

WE notice with much regret the announcement of the death of Dr. George Harley. Dr. Harley was born on February 12, 1829, at Haddington. At the end of his sixteenth year he matriculated as a medical student at the University of Edinburgh, graduating there in 1850. He left Edinburgh in the following year, and went to Paris to pursue his scientific studies. After two years' residence there he proceeded to Germany, where he continued his studies at the Universities of Würzburg, Berlin, Vienna, and Heidelberg. On his return to England he became Curator of the Anatomical Museum at University College, and subsequently he was appointed to its lectureship on practical physiology and histology. In 1859 he was appointed to the professorship of medical jurisprudence at the College, and shortly afterwards was made physician to University College Hospital. In 1861 he won the triennial prize of fifty guineas offered by the Royal College of Surgeons, for an essay "On the Anatomy and Physiology of the Supra-Renal Bodies." Up to 1863 he had contributed no fewer than twenty-one separate memoirs to science, which fact was recognised by his election into the Royal Society in 1865. He was already at that time a corresponding member of the Academy of Sciences, of Bavaria, and of the Academy of Medicine, of Madrid. It was Dr. George Harley who proposed what is known as the A.C.E. anæsthetic, a mixture of absolute alcohol, chloroform, and sulphuric ether, in the proportion 2 : 3. His suggestion was adopted by the Chloroform Committee of the Royal Medico-Chirurgical Society, and soon it became widely accepted as being the safest of any of the known anæsthetics. He was the author of several valuable works on medical subjects.

THE opening of a new Pathological Institute at Glasgow is reported in the *Lancet*. The Institute is an addition to the Western Infirmary, and every care has been taken to ensure its adequacy for its purpose. It comprises a large lecture-room, post-mortem laboratory, practical class-room, chemical and bacteriological laboratories, photographic room, and private working rooms in which original researches may be conducted, as well as a large and commodious museum. The total expenditure has exceeded £15,000. At the inaugural ceremony Prof. Gairdner delivered an address on the relation of the study of pathology to the art of medicine and the public health. Speeches were also delivered by Prof. Coats, Prof. Boyce (Liverpool), Dr. Leith (Edinburgh), Mr. J. G. A. Baird, M.P., and Mr. J. Wilson, M.P.

THE new session of the Royal Geographical Society will open on November 10 with a brief introductory address by the President, Sir Clements Markham, and a description, by Mr. A. Montefiore Brice, of last year's work of the Jackson-Harmsworth Arctic Expedition. On November 23, Lieut. Vandeleur will give a paper on Uganda, Unyoro, and the Upper Nile Region, and on December 7, Colonel J. K. Trotter will describe his journey to the sources of the Niger. Dr. Fridtjof Nansen will give an account of the results of his recent expedition across the North Polar area, at a meeting to be held towards the end of January. Other papers, which may be expected after Christmas, are the following:—Exploration in Spitzbergen, by Sir W.

Martin Conway; a journey through Senegambia, by Harry W. Lake; an expedition to the Barotsse country, by Captain A. S. Gibbons and his companions, Percy C. Reid and Captain Bertrand; the cañons of Southern Italy, by R. S. Günther; journeys in Tripoli, by H. S. Cowper; journeys in Central Asia, by Dr. Sven Hedin; exploration on the South of Hudson's Bay, by Dr. Robert Bell. Special meetings will be held in connection with the 400th anniversary of the discovery of Newfoundland by Cabot, and of the Cape route to India by Vasco da Gama. Under the joint auspices of the Society and the London University Extension, Mr. H. J. Mackinder is giving a course of twenty-five lectures on the geography of Europe, Asia and Northern Africa, in illustration of the methods and principles of modern geography, at Gresham College, Basinghall Street, E.C.

So many popular periodicals now consist entirely of snippets, that the public taste for more substantial literature has been impaired. It is, therefore, with no small degree of satisfaction that we note the counteracting influence of the *Daily Chronicle*. At the beginning of September that journal published a paper by Dr. Nansen on his Arctic expedition, and also a detailed communication from Captain Sverdrup on the voyage of the *Fram*. The enterprise which secured these interesting narratives is again shown by the announcement that the *Daily Chronicle* of November 2, 3, and 4, will contain a signed description by Nansen himself of his recent expedition, accompanied by a map of the course of the *Fram* and of his sledge journey. The narrative will be illustrated by sixteen drawings from photographs. The first part will describe the general plan of the expedition, and the drifting of the *Fram* in the Polar current; the second will deal with the journey of Nansen and Johansen from March 1895 until they met Mr. Jackson; and the third part will be devoted to the voyage of the *Fram* after they left her. The articles will thus epitomise the whole of the results of the expedition; and we are glad that a contribution of this character will appear in a daily paper appealing to such a wide public as that commanded by our very active contemporary.

THE Pasteur Institute of India is now within measurable distance of becoming an accomplished fact. From a report in the Allahabad *Pioneer Mail* of a meeting of the Council, on September 10, we learn that 70,000 rupees has already been collected in subscriptions from the general public, and it is estimated that with 50,000 rupees more the building might be commenced, equipment provided, and work begun at a very early date. In addition to the contributions referred to, annual subscriptions amounting to 2873 rupees have been promised by well-disposed Municipal and District Boards, and from the purses of private individuals in the Punjab, for the maintenance of the institution; and if this sum be added to 1500 rupees, *i.e.* the interest at 3 per cent. on a fund of 50,000 rupees now available for investment, there is already at the disposal of the Body of Control a total annual income of 4373 rupees. The question of a site for the Institute has not yet been settled. The scope of the proposed Institute was described in these columns on September 17 (p. 483).

MR. GOSSELIN, of the British Embassy in Berlin, mentions in a recent report (says the *Times*) that the question of preserving big game in German East Africa has been under the consideration of the local authorities for some time past, and a regulation has been notified at Dar-es-Salaam which it is hoped will do something towards checking the wanton destruction of elephants and other indigenous animals. Under this regulation every hunter must take out an annual licence, for which the fee varies from five to 500 rupees, the former being the ordinary fee for natives, the latter for elephant and rhinoceros hunting and

for the members of sporting expeditions into the interior. Licences are not needed for the purpose of obtaining food, nor for shooting game damaging cultivated land, nor for shooting apes, beasts of prey, wild boars, reptiles, and all birds except ostriches and cranes. Whatever the circumstances the shooting is prohibited of all young game—calves, foals, young elephants, either tuskless or having tusks under three kilos, all female game if recognisable—except, of course, those in the above category of unprotected animals. Further, in the Moschi district of Kilima-Njaro, no one, whether possessing a licence or not, is allowed without the special permission of the Governor to shoot antelopes, giraffes, buffaloes, ostriches, and cranes. Further, special permission must be obtained to hunt these with nets, by kindling fires, or by big drives. Those who are not natives have also to pay 100 rupees for the first elephant killed and 250 for each additional one, and 50 rupees for the first rhinoceros and 150 for each succeeding one. Special game preserves are also to be established, and Major von Wissmann, in a circular to the local officers, explains that no shooting whatever will be allowed in these without special permission from the Government. The reserves will be of interest to science as a means of preserving from extirpation the rarer species, and the Governor calls for suggestions as to the best places for them. They are to extend in each direction at least ten hours' journey on foot. He further asks for suggestions as to hippopotamus reserves, where injury would not be done to plantations. Two districts are already notified as game sanctuaries. Major von Wissmann further suggests that the station authorities should endeavour to domesticate zebras (especially when crossed with muscat and other asses and horses), ostriches, and hyena dogs crossed with European breeds. Mr. Gosselin remarks that the best means of preventing the extermination of elephants would be to fix by international agreement amongst all the Powers on the East African coast a close time for elephants, and to render illegal the exportation or sale of tusks under a certain age.

AN interesting report has been drawn up by Dr. M. C. Schuyten on the influence of atmospheric variations on the voluntary attention of school-children (*Bulletin de l'Académie Royale de Belgique*). Observations were made in four different schools in Belgium, the method adopted being to give the children in class a passage to read from a book, and to note whether their eyes were fixed on the pages. The general conclusions arrived at by statistical tabulation of the results were as follows: (1) The attention of children varies inversely with the temperature of the air, being greater in winter than in summer; (2) it is greater in the higher than in the lower classes; (3) it is higher among girls than boys, and the difference is greatest in winter; (4) it decreases from 8.30 to 11 a.m., and also from 2 to 4 p.m.; at 2 p.m. it is greater than at 11 a.m., but less than at 8.30 a.m.

DR. NANSEN'S work on his expedition to the North Pole will be published in the English language by Messrs. Archibald Constable and Co.

THE Rev. Edmund Ledger will give a course of four lectures upon "Eclipses of the Sun," at Gresham College, Basinghall Street, on November 3, 4, 5, and 6. The lectures are free, and they commence at 6.0 p.m.

THE editor of the *Journal of Malacology* requests us to say that he is still desirous of obtaining living specimens of worm-eating slugs (*Testacelle*), so as to add to the records he has of the distribution of these animals in the British Isles, and which he hopes to be soon in a position to publish. All communications should be addressed to Wilfred Mark Webb, "Ellerie," Crescent Road, Brentwood, Essex.

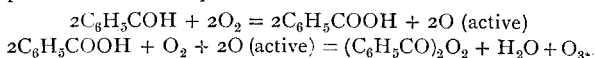
NO. 1409, VOL. 54]

DURING November, popular science lectures will be delivered on Tuesday evenings, at 8.30, at the Royal Victoria Hall, Waterloo Road, as follows:—November 3, Rev. J. Grant Mills, on "St. Thomas's Hospital, Past and Present"; November 10, Prof. Carlton J. Lambert, on "A Pennyworth of Gas; what it is, and what we can do with it"; November 17, Dr. Bertram L. Abrahams, on "The Eye"; November 24, Lieut. Darwin, on "A Popular Account of an Astronomical Expedition."

A MEETING of the Institution of Mechanical Engineers will be held on Wednesday and Thursday, November 4 and 5. The chair will be taken at half-past seven p.m. on each evening by the President, Mr. E. Windsor Richards. The following papers will be read and discussed, as far as time permits:—"Research Committee on the Value of the Steam-Jacket; Experiment on a Locomotive Engine," by Prof. T. Hudson Beare and Mr. Bryan Donkin; "Transmission of Heat from Surface Condensation through Metal Cylinders," by Lieut.-Colonel English and Mr. Bryan Donkin; "Breakdowns of Stationary Steam-Engines," by Mr. Michael Longridge.

THE *Kew Bulletin* (Nos. 113 and 114) gives an account of the progress, since its foundation in 1892, of the botanic station at Belize, British Honduras. It has been founded by the Governor, Sir Alfred Moloney, for the purpose of experimenting on the tropical staples most suitable for the climate. Since the decline in the production of mahogany, due to African competition, the export of logwood has been almost the sole source of wealth to the colony. It would appear, however, that British Honduras is very favourably situated, as regards soil and climate, for the production of many other tropical commodities, and has excellent communication with the Southern States of America.

It has long been known that during the slow oxidation of a number of substances in oxygen or air, part of the oxygen becomes endowed with peculiarly active properties. Various explanations of the phenomenon have been offered; the tendency of recent investigation, however, seems to be to show that the oxygen molecules split up into atoms (probably with opposite electrical charges), one of which brings about oxidation, the other forming the so-called active oxygen. An interesting contribution to our knowledge of this subject is just published in the form of an inaugural dissertation by Mr. W. P. Jorissen (Amsterdam, 1896). He finds that triethyl-phosphine, in presence of water (in the dry state the reaction proceeds further), takes up from the air a quantity of oxygen corresponding to the formation of triethyl phosphine oxide, $\text{P}(\text{C}_2\text{H}_5)_3\text{O}$. Benzaldehyde is similarly converted into benzoic acid. If, however, a substance such as a solution of indigo, which is not oxidised by ordinary oxygen, be present, twice as much oxygen is absorbed, the indigo being decolourised. For each atom of oxygen used up in oxidising the triethyl phosphine or benzaldehyde an atom of "active" oxygen is produced, which acts on the indigo. The changes occurring during slow oxidation are, however, frequently more complicated. For example, if a mixture of benzaldehyde and acetic anhydride be exposed to the air, oxidation occurs with formation of benzoyl peroxide and ozone. Jorissen supposes the reaction to proceed as follows.



The acetic anhydride serves probably as a dehydrating agent. In conformity with these equations, it is found that twice as much oxygen is absorbed in this reaction as if the benzaldehyde had simply been oxidised to benzoic acid. His own experiments, taken together with previously published results, lead the author to the conclusion that "a body undergoing slow oxidation

converts the same quantity of oxygen into the 'active' state, as it itself takes up in the formation of the *primary* product of oxidation."

THE theory of electrolytic dissociation, which is of such great importance in modern chemical speculations, has been hitherto almost exclusively confined, in its application, to aqueous solutions. Notwithstanding the few investigations of the electrical conductivity of solutions of salts in other solvents which have already appeared, our knowledge of the ionisation of such solutions is still very fragmentary. An extensive series of measurements of the conductivity of solutions of salts in methyl alcohol, published by Messrs. Zelinsky and Krapivin in the current number of the *Zeitschrift für physikalische Chemie*, is therefore very welcome. They find that the methyl alcohol solutions have, in many cases, conductivities of the same order of magnitude as the aqueous solutions. For example, the conductivities of methyl alcoholic and aqueous solutions of potassium bromide of the same strength are in the ratio 1:1.5 approximately, with tetramethyl-ammonium bromide the ratio is 1:1, and the dilute alcoholic solutions of trimethylsulphine iodide possess almost the same conductivities as the aqueous solutions. The influence of the change of solvent is more marked with the acids; oxalic and trichloroacetic acids, for example, the aqueous solutions of which are good conductors, possess very small conductivities in methyl alcoholic solution. In all cases the molecular conductivity increases with increasing dilution; the limit does not appear, however, to have been reached for any of the substances examined. The molecular conductivity of some of the badly conducting substances increases with the dilution in much the same way as is the case with aqueous solutions of feebly dissociated substances, viz. approximately in proportion to the square root of the dilution. For example, the molecule conductivity of a solution of tin diethyl iodide, $\text{Sn}(\text{C}_2\text{H}_5)_2\text{I}_2$, increases 1.36 times when the dilution is doubled, instead of $\sqrt{2} = 1.41$ times; with trichloroacetic acid the increase is 1.365 times. A curious fact, no explanation of which is as yet forthcoming, is that the substitution of a small quantity of alcohol for water diminishes the conductivity of the aqueous solutions considerably, and that the addition of a little water to the alcohol used has the same effect on the alcoholic solutions. Measurements of the conductivities of some salts dissolved in a mixture of equal parts by weight of methyl alcohol and water, show that they are almost exactly half those found in pure water, or 25-30 per cent. smaller than those found in pure methyl alcohol.

THE additions to the Zoological Society's Gardens during the past week include three Purple-faced Monkeys (*Semnopithecus leucoprymnus*) from Ceylon, a Rhesus Monkey (*Macacus rhesus*), a — Bamboo Rat (*Rhizomys*, sp. inc.), a — Mouse (*Mus*, sp. inc.), three — Doves (*Turtur*, sp. inc.), eleven Burmese Tortoises (*Testudo elongata*), seven Black-backed Tortoises (*Testudo platynota*), three Ceylonese Terrapins (*Nicoria trijuga*, *var. edeniana*), four Shielded River Turtles (*Emys scutata*), five Cocteau's Geckos (*Hemidactylus coctaei*), twelve Verticillated Geckos (*Gecko verticillatus*), six Yellowish Monitors (*Varanus flavescens*), six Doria's Lizards (*Mabuia doriei*), six Emma's Lizards (*Calotes emma*), three Bell's Lizards (*Liolepis belliana*), five Robed Snakes (*Tropidonotus stolidus*), two Fishing Snakes (*Tropidonotus piscator*), a Rayed Snake (*Coluber radiatus*), a Condenser Sand-Snake (*Psammodromus condanarus*), two Well-spotted Snakes (*Dipsadomorphus multimaculatus*), two Olivaceous Water-Snakes (*Hypsirhina euhydria*), an Aulic Snake (*Lycodon aulicus*), two Ornamental Tree Snakes (*Chrysopelea ornata*), four Grass-Green Tree Snakes (*Dryophis prosina*), two Long-snouted Snakes (*Passerita mycterizans*), a Hamadryad (*Ophiophagus elaps*), a Banded Bungarus (*Bungarus fasciatus*),

an Indian Cobra (*Naia tripudians*), three Russell's Vipers (*Vipera russelli*), eleven Green Pit-Vipers (*Lachesis gramineus*) from Burmah, presented by Mr. W. C. Bligh; a Black Lemur (*Lemur macao*) from Madagascar, presented by Captain H. Talboys; a Black Wallaby (*Halmaturus nabalatus*) from New South Wales, presented by Mr. Malcolm Watson; a Moorish Tortoise (*Testudo mauritanica*) from North Africa, presented by Mr. R. M. C. Souper; a Yellow-checked Lemur (*Lemur xanthomystax*) from Madagascar, presented by Mr. H. O. Townshend; a Smith's Dwarf Lemur (*Microcebus smithi*) from Madagascar, presented by Dr. Hubert E. J. Bliss; two Panolia Deer (*Cervus eldi*) from Burmah, deposited; two Virginian Eagle Owls (*Bubo virginianus*) from North America, purchased; a Great Eagle Owl (*Bubo maximus*) European, received in exchange.

OUR ASTRONOMICAL COLUMN.

COMET 1870 II.—This comet was discovered on August 28, by Coggia in Marseilles, and was last observed by Pechüle in Hamburg. During the period of its visibility it described a heliocentric arc of about 59° . On September 26 it approached its least distance from the earth, this being measured as 0.885 radii of the earth's orbit. In appearance the comet resembled a nebular mass with a perceptible nucleus; it varied, however, considerably, sometimes appearing without a nucleus, while at other times several nuclei were observed. Up to the present time the ephemeris obtained from the elements, computed by Gerst, represented very well the observed positions.

These elements were as follows:—

$T = 1870 \text{ September } 2^{\text{h}} 23^{\text{m}} 39^{\text{s}}$ Berlin Mean Time.

$$\begin{aligned} \pi &= 7^\circ 53' 19''.0 \\ \Omega &= 12^\circ 56' 22''.4 \\ i &= 99^\circ 20' 45''.9 \end{aligned} \left. \vphantom{\begin{aligned} \pi &= 7^\circ 53' 19''.0 \\ \Omega &= 12^\circ 56' 22''.4 \\ i &= 99^\circ 20' 45''.9 \end{aligned}} \right\} 1870.0$$

$$\log q = 0.259288$$

Dr. Anton Schobloch has, however, undertaken the investigation of determining more thoroughly the elements of this comet. In this calculation he has included 311 observations, made at various observatories. The main figures in the computation will be found in *Astronomische Nachrichten* (No. 3383), together with the list of the observations and comparison stars used. The result shows, however, that there is no reason to depart from the assumption of a parabolic orbit. The final elements, as given below, differ only slightly from those obtained by Gerst. They are, as the following figures show:

Mean Equinox, 1870.0. Osculation, September 13.5, Berlin Mean Time.

$T = 1870 \text{ September } 2^{\text{h}} 23^{\text{m}} 18.23^{\text{s}}$ Berlin Mean Time.

$$\begin{aligned} \pi &= 7^\circ 53' 15''.14 \\ \Omega &= 12^\circ 56' 18''.78 \\ i &= 99^\circ 21' 3''.90 \end{aligned} \left. \vphantom{\begin{aligned} \pi &= 7^\circ 53' 15''.14 \\ \Omega &= 12^\circ 56' 18''.78 \\ i &= 99^\circ 21' 3''.90 \end{aligned}} \right\} \text{Ecliptic}$$

$$\log q = 0.2592768.$$

COMET GIACOBINI.—This comet is not a very bright object in the heavens, but as Prof. Kreutz appeals for more observations to enable an accurate determination of its period possible, we give the following ephemeris. The elements on which this is based are those obtained by Messrs. Perrotin and Giacobini from observations made on September 4, 12, and 27. A glance at the ephemeris, given in *Astr. Nach.* (No. 3384), shows that the southern declination of the comet commences, about November 3, to decrease.

Ephemeris for 12h. Berlin Mean Time.

	1896.	R.A. app. h. m. s.	Decl. app. ° ' "	log r .	log Δ	Br.
Oct.	29 ...	19 36 26	-13 43.5	0.1616	0.1177	0.97
	30 ...	39 42	44.6			
	31 ...	42 58	45.4			
Nov.	1 ...	46 15	46.0			
	2 ...	49 32	46.3	0.1620	0.1243	0.94
	3 ...	52 50	46.4			
	4 ...	56 8	46.2			
	5 ...	19 59 27	-13 45.7			